tuitous alteration in length by turgor changes; but he thinks this explanation precluded by the different behavior of the plants with sugar solutions under aerobic and anaerobic conditions respectively. Because of the great increase in growth late in the culture period, he also rejects the possibility of anaerobic growth being due to residual oxygen, even though there must be some not removable by his methods. Taking everything into consideration, NABOKICH believes that aerobic and anaerobic growth have no necessary connection, being called forth by different factors.

A reading of this paper leaves one unconvinced that the author has established his point, in spite of the apparently prodigious labor the prolonged and very difficult research has involved, with results of minimal consequence. It seems another case of the mountains in labor.—C. R. B.

Hybridization.—GIGLIO-TOS[32] publishes an attempt to reach theoretical explanation of the varied phenomena of hybridization. His views are based on his theory of "biomolecular addition" which may be briefly stated. He supposes that a fertilized egg, *A*, consists of a series of molecules *a*, *b*, *c*, *d*, *e*, ... , and that after a series of chemical transformations owing to assimilation they arrive finally at a chemical constitution *m*, *n*, *o*, *p*, *q*, ... , after which each divides into *2a*, *2b*, *2c*, *2d*, *2e*, ... , bringing a return to the original condition. When this occurs, "regeneration of the germ" would be complete. In sexual reproduction if ♂*A* nd *B*♀ represent the biomolecules of he two germ cells, the organism developed from the fertilized egg, ♂*AB*♀, might have the capacity of regenerating the whole "biomolecule" which formed it, in which case we would have parthenogenesis; or if complete regeneration is not possible we will have sexual reproduction, each of the germ cells regenerating a part. The case in plants, in which both sexes are usually present in the same individual, is not specifically considered.

From this point of view the writer interprets sexuality, synapsis and reduction, fertilization and hybridization. It is further supposed that the zygote *AB*, while retaining an equal number of male and female biomolecules, yet in the ontogeny undergoes certain modifications, so that the resulting germ cells will be ♂*M* and *N*♀; and that the constitution of these is such that they can be added to each other ("biomolecular addition") to produce again ♂*AB*♀.

On this basis the results of crossing are considered from an a-priori point of view and a number of "laws" are enunciated. Explanations of Mendelian segregation, blending, and other phenomena of hybridization are offered, and predictions made as to the results of cross-breeding reciprocal hybrids. The formal character of the hypothesis makes it probable that it will fail to conform to many of the facts of hybridism, but its viewpoint is very suggestive. For the details of its application see the original paper.—R. R. GATES.

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[32] GIGLIO-TOS, ERMANNO, L'eredità e le leggi razionali dell' ibridismo. Biologica **2**:no. 10. pp. 36. 1908.